REMARKS

As the previously submitted response to the final Office Action was not entered, Applicants instead have filed a Request for Continued Examination and submit the enclosed amendments and additional comments to respond to the Examiner's arguments in the Advisory Action and to more clearly illustrate the patentability of the claimed invention.

Claims 11-18, as amended, and new claims 19-22, are pending for the Examiner's review and consideration. In the specification, various paragraphs on various pages have been amended to correct a few typographical errors and grammatical errors. Many of the amendments involve replacing "future" with "further," "dimmers" with "dimers," and "solve" with "dissolve." The title has also been amended to reflect that both article and method claims are pending. Claims 11 and 17 have been amended to recite that the dye is present in an amount of 0.1 weight percent to 10 weight percent of the fluorescent composition (*See, e.g.,* Specification at page 5, line 11). Claim 17 has also been amended to indicate a functional recitation of temperature (*See, e.g.,* Specification at page 6, lines 2-3).

New claim 19 recites a preferred temperature for step (b) of claim 17. This temperature measurement is clearly recited in degrees Celsius (*See, e.g.*, Specification at page 6, line 3). New claim 20 recites a preferred embodiment where the plasticizer is present in 10 to 50 weight percent of the fluorescent composition (*See* original claim 4). New claim 21 recites an optical disc that includes a sufficient amount of fluorescent dye to provide a transmittance of about 92% to about 96% through the information layer. To obtain the values recited in claim 21, the D_1 values, or optical density of the monomer form of the dye in a maxima of absorption (*See, e.g.,* Specification at page 15, line 5) were transformed into transmittance values. Optical density is expressed by $\log_{10}(1/T)$ where T is transmittance, or percent transmission. Therefore, a D_1 of 0.034 (row 1 of Table 2) is equivalent to a transmittance of about 92%, and a D_1 of 0.017 (row 4 of Table 2) is equivalent to a transmittance of about 96%. New claim 22 recites the same primer materials recited in claim 12. New claims 19-22 are therefore fully supported by the Specification. No new matter has been introduced by any of the amendments or new claims herein, such that entry of the claims is warranted at this time.

Claims 11-12, 14, and 16 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,492,792 to Tamura et al. ("Tamura") for the reasons set forth on pages 2-5 of the final Office Action.

Tamura is directed to providing an optical recording medium reportedly having excellent sensitivity to light within the near infrared region and greater heat resistance

(Col. 2, lines 13-15). The optical recording medium includes a recording layer containing a polymethine dye (Col. 2, lines 36-37). Tamura discloses that the content of the polymethine compound in the recording layer is generally 1% by weight or more, preferably 40 to 100% by weight, more preferably 50 to 100% by weight (Col. 27, lines 11-15). Tamura expressly states that with a content of more than 40% by weight, a recording layer exhibiting sufficient light absorption and sufficient reflectance for a reproduction laser beam can be obtained (Col. 27, lines 16-18).

Claim 11 has been amended to recite that the dye is present in an amount of 0.1 weight percent to 10 weight percent of the fluorescent composition. Although Tamura states that the concentration of dye in such a layer is generally 1% by weight or more, Tamura states immediately thereafter that a fluorescent composition must have a dye concentration of more than 40% to exhibit sufficient light absorption and reflectance for a reproduction laser beam to be obtained. Thus, Tamura teaches that amounts over 40% of dye must be included for its invention to be operative. Applicants, however, have surprisingly and unexpectedly discovered that such high amounts of dye are not required for the recording layer to function. Tamura effectively teaches that the recording layer must have at least 40% dye to function. The recording layer must perform the functions of: (1) writing or recording information by absorbing light; and (2) reading or regenerating information by reflecting light. If the recording layer does not provide sufficient absorption and reflectance, it cannot function correctly.

Tamura therefore fails to teach or suggest 0.1 weight percent to 10 weight percent of dye in the fluorescent composition. If the proposed modification would render the Tamura invention unsatisfactory for its intended purpose, then there was no suggestion or motivation to one of ordinary skill in the art to make the proposed modification. *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984). Indeed, Tamura effectively *teaches away* from the amounts of 0.1 weight percent to 10 weight percent fluorescent dye now recited in claims 11 to 18. Tamura therefore suggests that with a content of less than 40% by weight, the recording layer exhibiting sufficient light absorption and sufficient reflectance for a reproduction laser beam *cannot* be obtained. Tamura suggests the claimed invention would be inoperative at such low dye concentrations, yet the present invention surprisingly and unexpectedly provides a beneficial optical medium.

New claim 21 is also distinguishable over Tamura. Claim 20 recites that the dye is present in an amount sufficient to provide a transmittance through the information layer of about 92% to about 96%. Tamura discloses various transmittance values in the range

of about 20% to about 89% (*See, e.g.,* Tables 2-1, 2-2, 3, 4-2, 5, 6, 7, and 8). Tamura therefore does not disclose or suggest the surprising and unexpected increase in the claimed transmittance values achieved with the present invention. Indeed, a large proportion of Tamura's transmittance values are in the range of 20-30%. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103(a) be reconsidered and withdrawn, as a *prima facie* case of obviousness has not been made on the record.

Claims 11-14 and 16-18 were rejected under 35 U.S.C.§ 103(a) as obvious over Tamura, in view of U.S. Patent No. 5,283,094 to Sasakawa et al. ("Sasakawa") for the reasons set forth on pages 5-6 of the final Office Action.

Sasakawa focuses on the amount of solvent remaining in a recording layer and the drying conditions after forming the recording layer to achieve its reported invention (*See, e.g.,* Col. 2, lines 6-10). The drying temperature is preferably 100°C or lower taking the heat resistance of the substrate into consideration (Col. 8, lines 1-3). Sasakawa therefore focuses more on the percentages of solvent in the recording layer, rather than the amount of dye. Sasakawa does, however, state that the concentration of the phthalocyanine *dye solution* in the optical recording medium is usually 0.1-10% by weight, preferably 0.5-7% by weight although it varies depending on types of solvent and methods for forming the recording film (Emphasis added) (Col. 6, lines 44-48). In addition to the phthalocyanine dye, other compounds, such as known aromatic or unsaturated aliphatic diamine type metal complexes, aromatic or unsaturated aliphatic diol type metal complexes, polymethine dyes, squarylium dyes, naphthoquinone type dyes, anthraquinone dyes or the like may be added in an amount of preferably 30% by weight or less, more preferably 20% by weight or less (Col. 6, lines 50-56). The total amount of the phthalocyanine dye and the above-mentioned dyes capable of being used together with the phthalocyanine dye in the recording layer is usually at least 80% by weight, preferably 90-100% by weight, more preferably 95-100% by weight of the recording layer (Col. 7, lines 20-25). Correspondingly, Sasakawa teaches to use small amounts of resin and additive in the layer, with the combination typically being present in less than 20 weight percent, preferably less than 10 weight percent, and more preferably less than 5 weight percent of the recording layer (Col. 7, lines 16-19). This is because higher amounts of resin make the reflectivity and recording sensitivity poor (*Id.* at lines 12-15*)*.

Claims 11 and 17 have been amended to recite that the dye is present in an amount of 0.1 weight percent to 10 weight percent of the fluorescent composition. Thus, the other components of the fluorescent composition, *i.e.*, the film-forming polymer(s), plasticizer(s), surfactant(s) and light stabilizer(s), must be present in amounts as high as 90 to

99.9 weight percent of the composition. As can be seen from the discussion above, Sasakawa fails to remedy the deficiencies of Tamura. Sasakawa reinforces Tamura's teaching of large amounts of dye, even expressly disclosing that high amounts of resin and other additives over roughly 20 weight percent of the fluorescent composition result in poor recording sensitivity.

In any case, as explained above, Tamura rejects the use of dye amounts lower than 40% because lower amounts cannot provide sufficient light absorption and sufficient light reflectance. Even if Sasakawa did teach or suggest the claimed amounts of dye, which it clearly does not, one of ordinary skill in the art would not have been motivated to combine that amount with the teaching of Tamura. Therefore, the combination of Tamura and Sasakawa still fails to even suggest a sufficient motivation for the use of 0.1 weight percent to 10 weight percent of fluorescent dye in the fluorescent composition, as presently recited in the claims. Because even the combination of Tamura and Sasakawa does not teach or suggest the use of fluorescent dye in the recited amounts, a *prima facie* case of obviousness has not been made.

Moreover, new claim 21 is similarly not rendered obvious by the combination of Tamura and Sasakawa. Sasakawa does not teach or suggest the claimed transmittance values. Indeed, the high amounts of dye suggested in Sasakawa actually result in lower transmittance values according to the data demonstrating the superior results of the claimed invention, as higher concentrations of dye generally increase absorption and decrease transmittance. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Claims 11-14 and 16-18 were rejected under 35 U.S.C. § 103(a) as obvious over Tamura, in view of Sasakawa, and further in view of U.S. Patent No. 4,752,554 to Sato et al. ("Sato") for the reasons set forth on page 6 of the final Office Action.

Sato is directed to providing an optical information recording medium comprising a substrate, a recording layer and a protective layer, characterized in that the protective layer comprises, as the main components, a high molecular compound and at least one of record-promoting agents selected from the group of (a) explosive material, (b) plasticizer, (c) organic low molecular compound having a melting point not higher than 140°C, and (d) light-absorbing material (Col. 1, lines 39-48). The light-absorbing material is used in a weight ratio of 0.03-0.4/1, preferably 0.1-0.3/1 to a binder (Col. 6, lines 62-63).

As discussed above, the combination of Tamura and Sasakawa fails to teach or suggest the use of 0.1-10% dye. Sato does not remedy this deficiency. Indeed, Sato teaches to include a *light-absorbing material,* which teaches away from the claimed invention having

relatively high transparencies due to the low 0.1 to 10 weight percent dye concentration. Sato appears to be relied on for its alleged teaching of polyvinyl chloride as a binder. Sato, however, also does not teach the use of fluorescent dye in the recited amount. Sato does teach weight ratios of dye to binder in the *protective layer*, but Sato does not teach or suggest the amount of dye *in the recording layer,* or in a fluorescent composition as presently recited. Sato also does not teach or suggest the high transmittance values of about 92% to about 96% as recited in new claim 21. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103(a) be reconsidered and withdrawn, as no *prima facie* case of obviousness has been made on the record.

Claims 11-18 were rejected under 35 U.S.C. § 103(a) as obvious over Tamura, in view of Sasakawa and further in view of Sato and U.S. Patent No. 4,904,574 to Suzuki ("Suzuki") for the reasons set forth on page 7 of the final Office Action.

Suzuki is concerned with the stabilization of organic base materials to light, and more precisely to the stabilization of organic compounds, especially organic dyes, and polymeric materials, to light (Col. 1, lines 5-10). Suzuki discloses diethylene glycol as an organic solvent to be used in conjunction with high boiling solvents for dispersing the dyes (Col. 38, lines 42-43). In general, the dye concentration should be equal to the concentration normally used for color photography (Col. 39, lines 19-21). The presence of the dye in amounts within the range of about 10 to 10^4 micromol per square meter of light-sensitive material is preferred, and most desirably dye is present in an amount within the range of about 100 to 3 $x10^3$ micromol per square meter of light-sensitive material (Col. 39, lines 22-28).

Suzuki also fails to remedy the deficiencies of Tamura, Sasakawa, or Sato, whether taken individually or in any combination. Suzuki is directed to the field of photography (*See, e.g.,* Col. 37, line 51), and thus teaches an amount of dye per square meter of light-sensitive material, rather than by weight of a fluorescent composition, as recited in the claims. Suzuki therefore also does not teach or suggest dye in an amount of 0.1 weight percent to 10 weight percent of the fluorescent composition. Furthermore, Suzuki fails to teach or suggest the claimed transmittance values of about 92% to about 96% as recited in new claim 21. Accordingly, Applicants respectfully request that this rejection under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

The Advisory Action noted that it was not pointed out specifically where in the Specification the previously proposed language indicating that the information layer is transparent could be found. The Advisory Action also stated that it may be that the amount

of dye in the examples disclosed in the Specification is less than that used in the references, but to indicate that the layer is transparent is "flawed."

On the contrary, the fact that the layer is transparent has been proven through the data demonstrating the superiority of the claimed application. These data illustrate the high level of transmission of light even through the fluorescent composition, which conventionally absorbed a significant amount of light. To more clearly and distinctly recite the invention, Applicants have included the particular range of amounts of dye in the information layer in the existing independent claims, and have also included a new independent claim that recites the transmittance of about 92% to about 96% of the information layer. The high values of transmittance clearly indicate that the information layer is at least substantially transparent, if not transparent, as is readily understood by those of ordinary skill in the art. In view of the pending claims, these concerns stated in the Advisory Action are believed to be moot.

Accordingly, the entire application is now in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree with the Applicants' position, then a personal or telephonic interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the application.

Respectfully submitted,

3/22/05
Date

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